

**THE FOLLOWING IS THE ENGLISH TRANSLATION OF THE  
1<sup>st</sup> ARTICLE 34 AMENDMENT (Pages 40-48)**

CLAIMS

1. (Amended) A semiconductor device characterized in that an electromagnetic wave transmission signal is transmitted from a transmitting antenna placed on a semiconductor substrate to a receiving antenna placed on the semiconductor substrate or receiving antennas placed on a plurality of semiconductor substrates such that wireless interconnection is accomplished, the semiconductor substrates have broadband transmitting/receiving antennas respectively, a signal is transmitted from one or more of the semiconductor substrates and received with the receiving antenna of the semiconductor substrate or the receiving antennas of the semiconductor substrates, the signal transmitted and received has an ultra-wideband communication function, multilayer wires are arranged in a first interlayer insulating layer placed on a semiconductor substrate, the multilayer wiring metal layer has a transmitting antenna, the transmitting antenna is connected to internal metal wires with via-holes filled with metal, the wiring metal layer having the transmitting antenna is placed in a second interlayer insulating layer, top and bottom of the wiring metal layer being covered thereby, the second interlayer insulating layer has a dielectric constant different from that of the first interlayer insulating layer

adjacent thereto so as to satisfy the condition that an electromagnetic wave is totally reflected from the interface between the first and second interlayer insulating layers, and reflectors are arranged on a plane on which the antenna is placed in the direction opposite to a radiation direction.

2. (Canceled)
3. (Canceled)

4. (Amended) A semiconductor device characterized in that multilayer wires are arranged in a plurality of interlayer insulating layers arranged on a semiconductor substrate, the multilayer wiring metal layer has a transmitting antenna, the transmitting antenna is connected to internal metal wires with via-holes filled with metal, the wiring metal layer having the transmitting antenna is placed in a first interlayer insulating layer, top and bottom of the wiring metal layer being covered thereby, the first interlayer insulating layer has a plurality of micro-pores that extend therethrough in the thickness direction thereof, and the thickness of the semiconductor substrate is greater than or equal to the far-field boundary of the electromagnetic field of an electromagnetic wave emitted from the antenna.

5. (Amended) A semiconductor device characterized in that multilayer wires are arranged in a plurality of interlayer insulating layers arranged on a semiconductor substrate, the multilayer wiring metal layer has a transmitting antenna, the transmitting antenna is connected to internal metal wires with via-holes filled with metal, the wiring metal layer having the transmitting antenna is placed in a first interlayer insulating layer, top and bottom of the wiring metal layer being covered thereby, the first interlayer insulating layer has a plurality of micro-pores arranged in the thickness direction thereof, and the micro-pores are filled with second interlayer insulating layers having different dielectric constants, and the thickness of the semiconductor substrate is greater than or equal to the far-field boundary of the electromagnetic field of an electromagnetic wave emitted from the antenna.

6. (Canceled)

7. (Canceled)

8. (Amended) A semiconductor device characterized in that an electromagnetic wave transmission signal is transmitted from a transmitting antenna placed on a semiconductor substrate to a receiving antenna placed on the semiconductor substrate or receiving antennas placed on a plurality of semiconductor substrates such that wireless interconnection is accomplished and a plurality of metal wiring layers are arranged perpendicularly to the radiation direction of the transmitting antenna, connected to each other with via-holes, and divided so as to have a length less than one eighth of the wavelength of an electromagnetic wave propagated in a semiconductor.

9. (Amended) A semiconductor device characterized in that an electromagnetic wave transmission signal is transmitted from a transmitting antenna placed on a semiconductor substrate to a receiving antenna placed on the semiconductor substrate or receiving antennas placed on a plurality of semiconductor substrates such that wireless interconnection is accomplished and metal wires have a length less than or equal to one eighth of the length of an electromagnetic wave propagated in the semiconductor substrate or substrates when the metal wires are arranged perpendicularly to the direction in which a electromagnetic wave is radiated from the antenna.

10. (Cancelled)

11. A semiconductor device characterized in that an electromagnetic wave transmission signal is transmitted from a transmitting antenna placed on a semiconductor substrate to a receiving antenna placed on the semiconductor substrate or receiving antennas placed on a plurality of semiconductor substrates such that wireless interconnection is accomplished, a lens-shaped insulating layer which is made of a material for forming a first or second interlayer insulating layer and which has a parabolic surface is placed above the transmitting antenna, the first and second interlayer insulating layers have different dielectric constants, and a metal layer is placed on the lens-shaped insulating layer.

12. (Canceled)

13. (Amended) A semiconductor device characterized in that an electromagnetic wave transmission signal is transmitted from a transmitting antenna placed on a semiconductor substrate to a receiving antenna placed on the semiconductor substrate or receiving antennas placed on a plurality of semiconductor substrates such that wireless interconnection is accomplished, the semiconductor substrates are arranged at equal intervals so as to achieve multilayer integration, and a transmitting/receiving antenna placed on the semiconductor substrate is placed on the same side as that on which the transmitting antenna is placed and serves as a relay for a synchronous clock signal radiated from the transmitting antenna.

14. (Canceled)

15. (Added) The semiconductor device according to Claim 13, wherein the maximum time obtained by dividing the distances between the transmitting and receiving antennas by the electromagnetic wave transmission speed is less than one fourth of a clock period thereof.